MISSILE DEFENSE SUBDOMAIN ANNEX FOR THE WEAPON SYSTEMS DOMAIN

WS.MD.1   SUBDOMAIN OVERVIEW

A weapon system is a combination of one or more weapons with all related equipment, materials, services, personnel and means of delivery and deployment (if applicable) required for self-sufficiency.

Systems covered within the Missile Defense subdomain include any system or subsystem (including associated BM/C4I systems) with a mission to detect, classify, identify, intercept, and destroy or negate the effectiveness of enemy missiles before launch or while in flight so as to protect US and coalition forces, people, and geopolitical assets.

This subdomain has been designated as an "emerging subdomain" for JTA 2.0; all standards in this subdomain are designated as emerging and are not mandated by JTA 2.0.

WS.MD.1.1   PURPOSE

This JTA Subdomain Annex identifies standards for missile defense systems. This version is focused solely on active ballistic missile defense, with the intent of expanding this annex in the future.

WS.MD.1.2   BACKGROUND

The following documents provide useful background information regarding missile defense (sorted by title), with particular emphasis on ballistic missile defense:

1. Ballistic Missile Defense (BMD) Command, Control, and Communications (C3) Operational Requirements Document (ORD), Air Force Space Command, working draft, 19 May 1997, Secret (US. Only).

2. Battle Management Concept for Joint Theater Air and Missile Defense Operations, Joint Theater Air and Missile Defense Organization (JTAMDO), final draft, 11 September 1997. This document is downloadable from the following World Wide Web address:
   http://199.114.114.8/~dj9snops/samd_files_for_download

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3. Capstone Theater Missile Defense (TMD) Cost and Operational Effectiveness Analysis (COEA), BMDO, 1996.

4. Doctrine for Joint Theater Missile Defense. Joint Pub 3-01.5. February 22, 1996.

5. FY96 Analysis Of The Ballistic Missile Defense Interoperability Standards, Fife et al., IDA-P-3277, Alexandria, VA: Institute For Defense Analyses.

6. JTAMD Mission Area Assessment, DoD J8, draft, October 30, 1997, Secret. (Note that this document combines the capstone TMD COEA, TAD, and information on land attack cruise missiles).

7. National Ballistic Missile Defense (NBMD) Capstone Requirements Document (CRD), U.S. Space Command, August 24, 1996, Secret (Release Can-US).

8. NMD Capability 2 System Requirements Document, TRW Inc., April 4, 1997, BMC3 SE&I, Rosslyn, VA: TRW.

9. Operational Requirements Document (ORD) for National Ballistic Missile Defense (NBMD), US Army Space and Strategic Defense Command, March 10, 1997, Secret.

10. Theater Air and Missile Defense Architecture for Joint Force Operations, Bean et al., June 1997, MP 97W 105.

11. Theater Air and Missile Defense Master Plan, September 1997, JTAMDO. POET control number MCNEIL 000396/97.

12. Theater Ballistic Missile Defense (TBMD) Capstone Requirements Document (CRD), U.S. Space Command, draft, August 7, 1997, Secret.

13. Theater Missile Defense (TMD) Command and Control (C2) Plan, August 1996.

WS.MD.1.3   SUBDOMAIN DESCRIPTION

For a description of this subdomain, see the background material in Section WS.MD.1.2.

WS.MD.1.4   SCOPE AND APPLICABILITY

The scope of this Subdomain Annex is the entire domain of missile defense (as defined in the overview above). However, the standards listed within this version of the annex solely address support for active defense against theater and strategic ballistic missiles (BMs) in flight, as a first step in evolving a comprehensive and complete set of standards for all missile defense systems. It is acknowledged that this evolution will require interaction with many communities to resolve standardization issues.

WS.MD.1.5   TECHNICAL REFERENCE MODEL

Missile defense systems typically include one or more sensors, one or more weapons systems, and a communication infrastructure all coordinated by a BMC3 system (which also coordinates with external systems). Kinetic missile defense systems have a weapon system including one or more launchers with one or more interceptors. Sensors, launchers, interceptors, and other weapon systems include information technology (IT) components and other components. At this time no single document or view has been officially designated as the missile defense technical reference model. No reference models have yet been developed for the non-IT parts of these systems.

WS.MD.1.6   ANNEX ORGANIZATION

This annex is divided into three sections: the Overview in Section WS.MD.1, the missile defense mandates and emerging standards additional to those in the JTA core in Section WS.MD.2, and the Subdomain Specific Services in Section WS.MD.3. Section WS.MD.2 follows the JTA Section 2 service area structure. The structure of Section WS.MD.3 will evolve as missile defense-specific service areas are identified and a common structure is coordinated amongst the other annexes.

WS.MD.2   ADDITIONS TO THE JTA CORE

WS.MD.2.1   INTRODUCTION

This section identifies standards for the Missile Defense Subdomain that are additional to standards in the JTA core.

WS.MD.2.2   INFORMATION PROCESSING STANDARDS

WS.MD.2.2.1   Mandates

There are no mandates in this section.

WS.MD.2.2.2   Emerging Standards

WS.MD.2.2.2.1   Navigation Standard

The following standard may be mandated by the JTA for ballistic missile defense systems to ensure that navigation-related data (e.g. position, velocity, and time) can be shared and properly used between missile defense systems. Note that this standard is consistent with and extends the mandates in the JTA core (e.g., WGS-84):

–   BMD-P-SD-92-000002-A, *Ballistic Missile Defense (BMD) Navigation Standard*, 23 June 1993, Ballistic Missile Defense Organization.

WS.MD.2.3   INFORMATION TRANSFER STANDARDS

There are no mandates or emerging standards for this section.

WS.MD.2.4   INFORMATION MODELING, METADATA, AND INFORMATION EXCHANGE STANDARDS

WS.MD.2.4.1   Mandates

There are no mandates in this section.

WS.MD.2.4.2   Emerging Standards

It is anticipated that future versions of the JTA may mandate that missile defense systems which are identified as part of the "Theater Missile Defense" system shall support MIL-STD-6016 (TADIL-J/link-16) as a mobile interoperable communication link.

It is also anticipated that future versions of the JTA may mandate that those missile defense systems which support MIL-STD-6016 shall also support the following additional standard, which adds a message type and conventions necessary to support ballistic missile defense:

–   *Interface Change Proposal (ICP) TJ93-096 Ch9*, commonly called the "Space Track Message," Ballistic Missile Defense Organization, 26 September 1997.

Note that there are ongoing efforts to include ICP TJ93-096 (listed above) as part of MIL-STD-6016.

Efforts are ongoing to merge the data element definitions (DEDs) developed for Theater Missile Defense (TMD), National Missile Defense (NMD), and the Joint Theater and Air Missile Defense Organization (JTAMDO).

The NMD program is in the process of selecting communication mechanisms. An IPT formed to study the issue has recommended that NMD use a VMF-based message set.

BMDO has formed the "Time and Geospatial Working Group" (TGWG) to identify additional time and geospatial issues and to develop cross-system resolutions of those issues.

WS.MD.2.5   HUMAN-COMPUTER INTERFACE STANDARDS

There are no mandates or emerging standards for this section.

WS.MD.2.6   INFORMATION SYSTEMS SECURITY STANDARDS

There are no mandates or emerging standards for this section.

WS.MD.3   SUBDOMAIN SPECIFIC SERVICE AREAS

There are no subdomain specific service areas identified at this time.